Claims

[c1]   An anti-tether apparatus adapted for devices accepting paper currency and transporting accepted paper currency in a paper currency path, comprising:

a rotatable disk having a slot wherein paper currency is movably passed through the slot of said disk when the slot is aligned with the paper currency path; and

a motor coupled to said disk for rotating said disk about an axis of rotation after paper currency has passed through the slot of said disk;

wherein the axis of rotation of said disk is substantially parallel to direction of movement of the paper currency when it passes through the slot of said disk.

[c2]   The apparatus of claim 1, wherein said disk rotates at least one revolution each time paper currency freely passes through the slot of said disk.

[c3]   The apparatus of claim 1, wherein said disk is coupled to said motor by a shaft.

[c4]   The apparatus of claim 3, wherein said disk is substantially enclosed between a front plate and a back plate.

[c5]   The apparatus of claim 4, wherein said front plate and said back plate have currency holes substantially in alignment with the paper currency path.

[c6]   The apparatus of claim 5, wherein said front plate is fixedly secured to said back plate.

[c7]   The apparatus of claim 6, wherein said front plate includes an elevated portion, wherein said motor is fixedly secured to said elevated portion, and wherein said shaft passes through the area defined by said elevated portion and said disk.

[c8]   The apparatus of claim 7, wherein material remaining in the slot of said disk after the paper currency has passed through the slot of said disk is wound around said shaft if said motor rotates said disk.

[c9]   The apparatus of claim 4, wherein the clearances between said disk and said back plate and between said disk and said front plate are approximately equal to or smaller than the thickness of said disk.

[c10]   The apparatus of claim 1, wherein the torque produced by said motor is sufficiently low that said motor will tend to stall when material remains in the slot of said disk when said motor rotates said disk.

[c11] The apparatus of claim 1, wherein the opening defined by the slot of said disk is bounded on all sides.

[c12] The apparatus of claim 11, wherein the opening defined by the slot of said disk encompasses both an arc substantially greater than the width of the paper currency, and a substantial portion of the radius of said disk.

[c13] The apparatus of claim 12, wherein said disk is substantially circular over its circumference.

[c14] A device for accepting and storing paper currency and performing a vend function, comprising:
a paper currency acceptor, wherein said paper currency acceptor includes a paper currency validator;
a paper currency stacker;
a paper currency path defined between said paper currency acceptor and said paper currency stacker;
an anti-tether apparatus, wherein said anti-tether apparatus includes a rotatable disk having a slot alignable with said paper currency path; and
electronic controls for causing said disk to rotate in response to paper currency entering said paper currency stacker and for monitoring the position of said disk;
wherein said anti-tether apparatus is located between said paper currency acceptor and said paper currency stacker relative to the paper currency path, wherein the

presence of a tether attached to a paper currency impedes rotation of said disk, and wherein said electronic controls detect that the rotation of said disk has been impeded by the tether.

[c15]   The device of claim 14, wherein the axis of rotation of said disk is substantially parallel to the direction of the paper currency when it passes through the slot of said disk.

[c16]   The device of claim 14, wherein said anti-tether apparatus includes a motor, and wherein said disk is coupled to said motor by a shaft.

[c17]   The device of claim 16, wherein said electronic controls cause said motor to rotate said disk at least one revolution in response to a paper currency exiting said paper acceptor.

[c18]   The device of claim 17, wherein said motor is of sufficiently low torque that a tether attached to a paper currency prevents said motor from rotating said disk.

[c19]   The device of claim 17, wherein a tether attached to a paper currency is wound around said shaft when said motor rotates said disk.

[c20]   The device of claim 17, wherein said electronic controls

include a position sensor and a monitoring unit, said position sensor detecting if the slot of said disk is aligned with said paper currency path, and said monitoring unit detecting if said disk made at least one revolution and if said at least one revolution was completed within a preset time window.

[c21] The device of claim 20, wherein said electronic controls initiate a vend function when said monitoring unit detects that said disk made at least one revolution within the preset time window.

[c22] The device of claim 20, wherein said electronic controls do not initiate a vend function if said rotation sensor does not detect at least one revolution or said monitoring unit determines that the at least one revolution was not completed within the preset time window.

[c23] The device of claim 20, wherein said electronic controls send an external signal if said rotation sensor does not detect at least one revolution or said monitoring unit determines that the at least one revolution was not completed within a preset time window.

[c24] The device of claim 23, wherein said external signal is a notification to repair service personnel.

[c25] The device of claim 23, wherein said external signal is an

audible alarm.

[c26] The device of claim 23, wherein said external signal is a notification to law enforcement personnel.

[c27] The device of claim 14, wherein said vend function is at least one chosen from dispensing of coins, dispensing of tokens, dispensing of product, and dispensing of a service.

[c28] The device of claim 27, wherein said dispensing of a service is at least one chosen from a clothes laundry function and a car wash function.

[c29] A method of preventing retrieval of a paper currency from a device adapted to perform a vend function, which comprises:
receiving paper currency with a paper currency acceptor;
validating the authenticity of the paper currency;
transporting the paper currency along a paper currency from the paper currency acceptor, through a slotted disk, and into a paper currency stacker;
rotating the disk on an axis substantially parallel to direction of movement of paper currency along the paper currency path;
monitoring a position of the disk to determine if the disk made a complete revolution within a predetermined time

limit; and

initiating a vend function in response to a determination that the disk made substantially a complete revolution within the predetermined time limit.

[c30]   A method as recited in claim 29, wherein the step of rotating the disk causes a tether attached to paper currency to be wound around a shaft.

[c31]   A method as recited in claim 29, wherein the step of rotating the disk is inhibited by a tether attached to a paper currency.

[c32]   A method as recited in claim 31, wherein the step of monitoring the position of the disk includes not allowing the vend function to be performed if the disk does not make a complete revolution or does not make a complete revolution within a predetermined time limit.

[c33]   A method as recited in claim 32, including the step of sending an outside signal.

[c34]   The method as recited in claim 29 wherein said vend function is at least one chosen from dispensing of coins, dispensing of tokens, dispensing of product and dispensing of a service.